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Figure 1

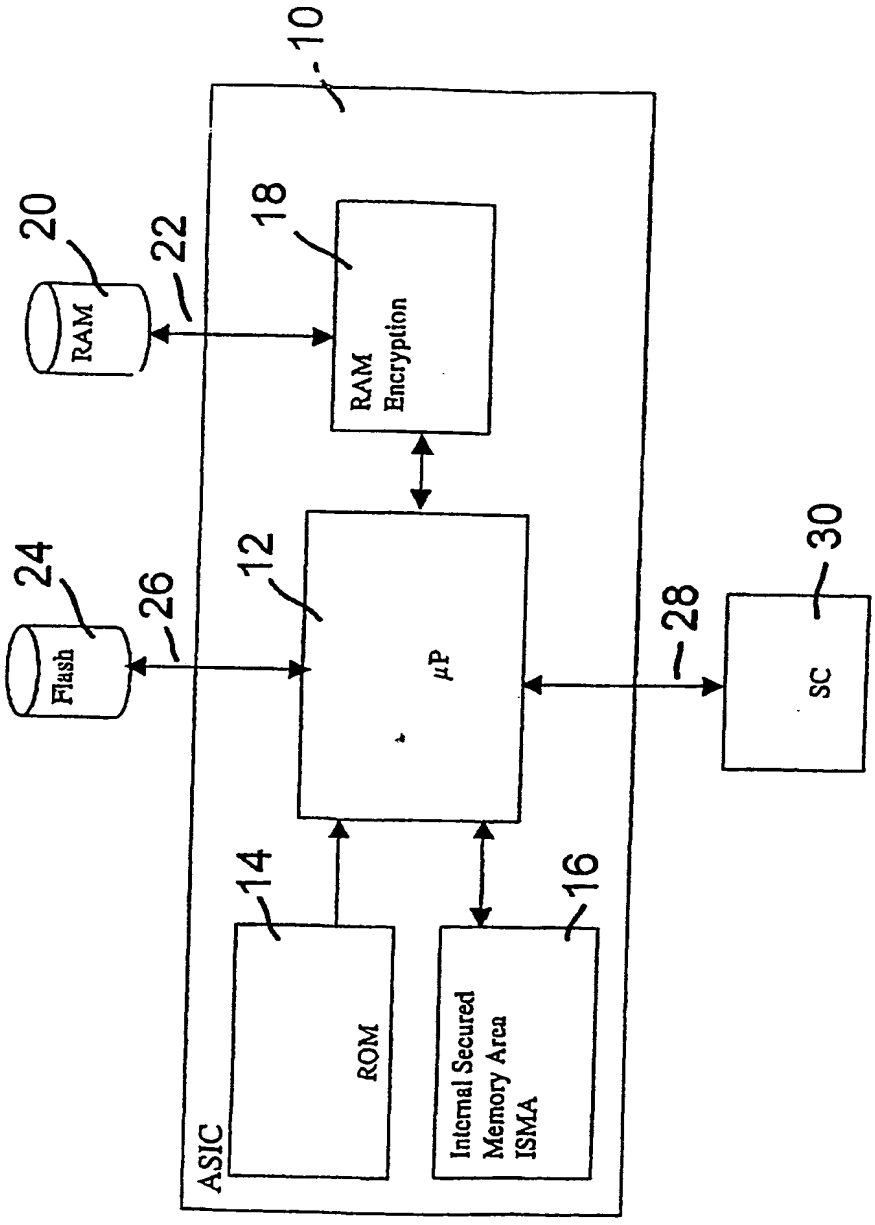

Figure 2A

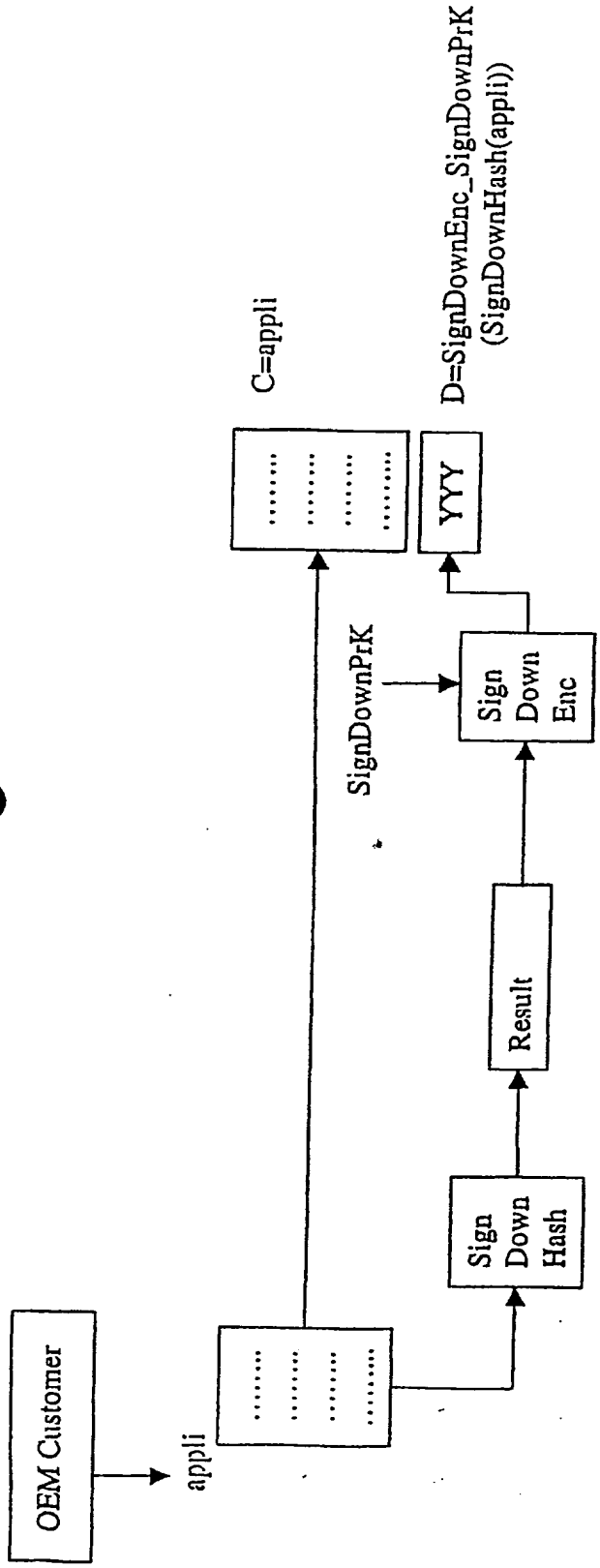
OEM Customer
appli
Sign Down Hash
Result
SignDownPrK
Sign Down Enc
C=appli
D=SignDownEnc_SignDownPrK (SignDownHash(appli))
YYY

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Figure 2B

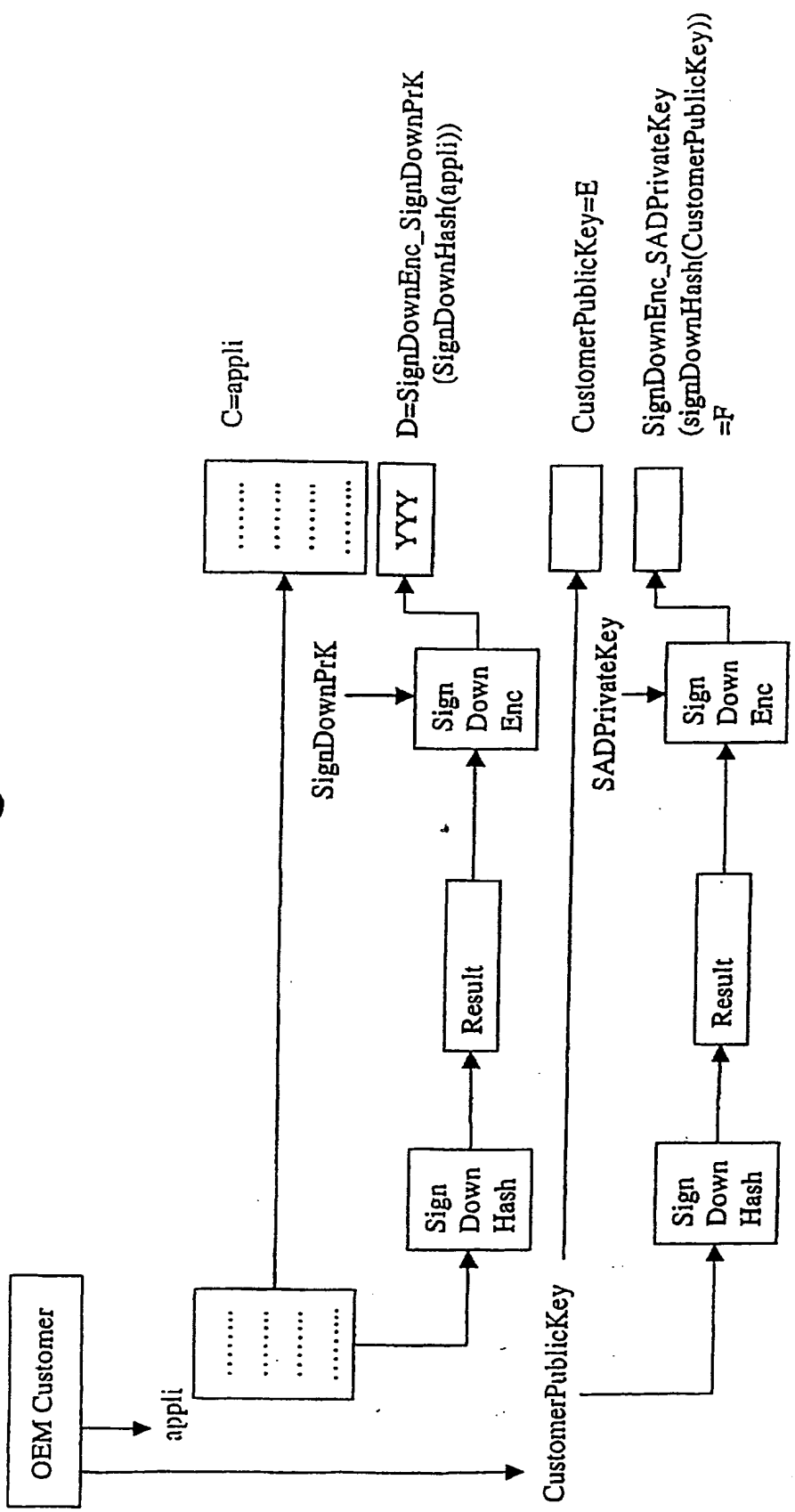

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figure 3A

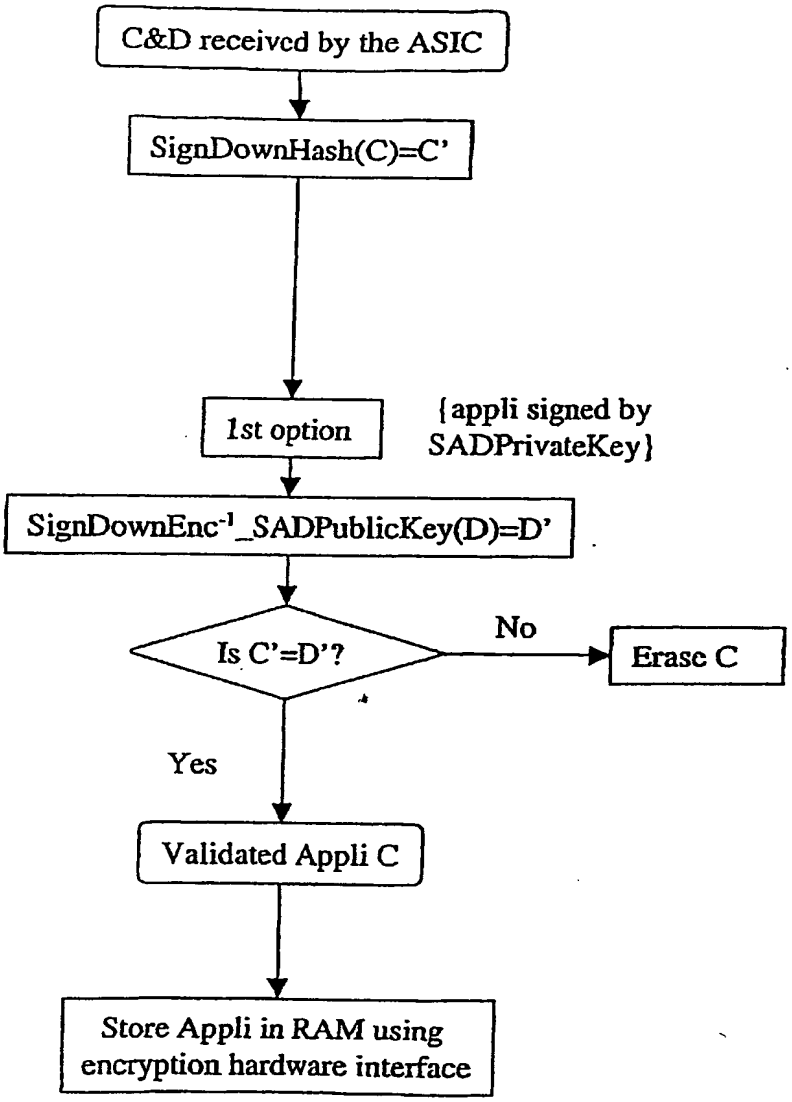

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figure 3B

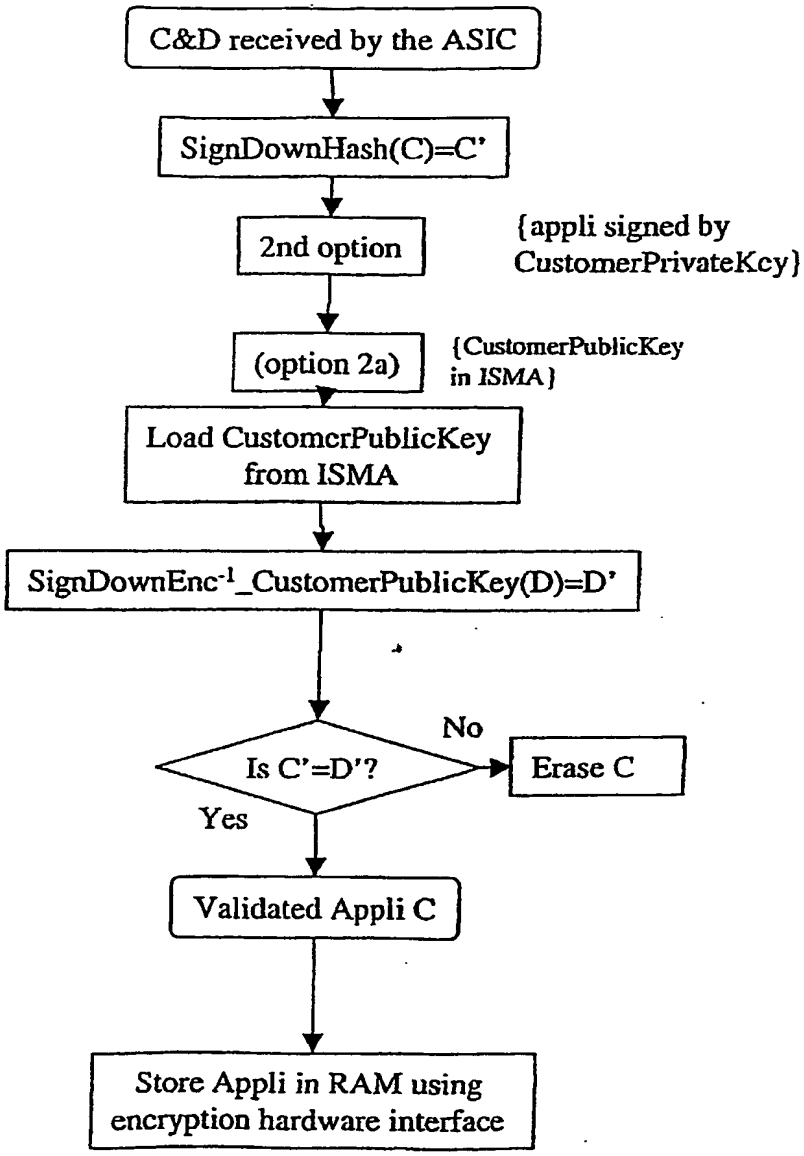

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Figure 3C

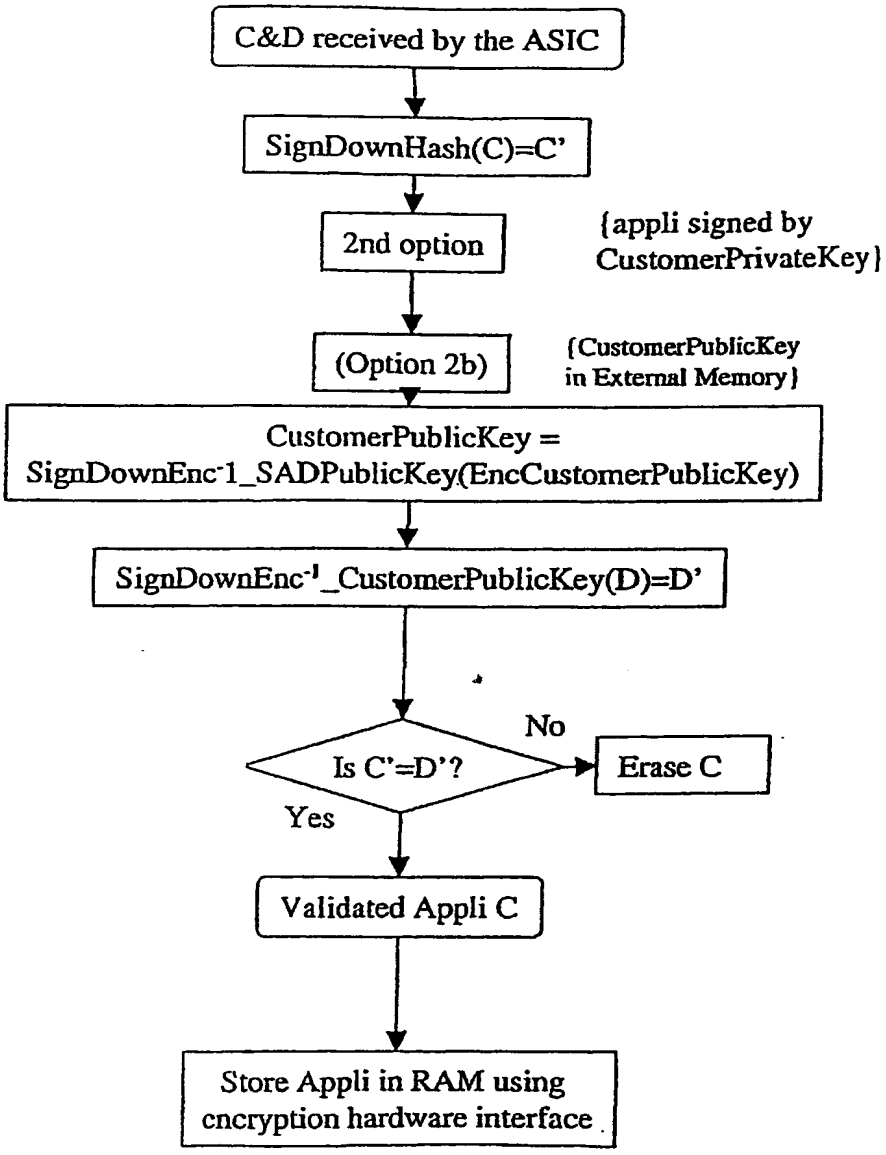

Figure 3D

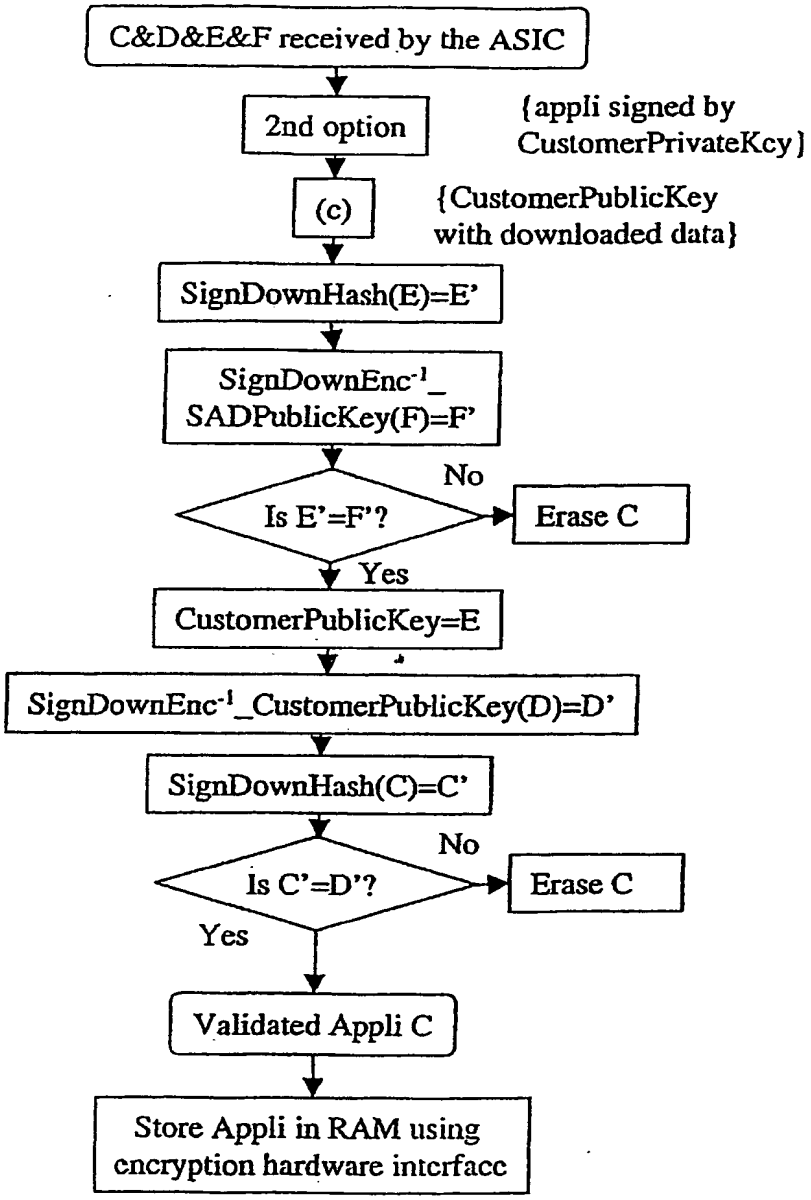
C&D&E&F received by the ASIC
2nd option
{appli signed by CustomerPrivateKey}
(c)
{CustomerPublicKey with downloaded data}
SignDownHash(E)=E'
SignDownEnc-1_ SADPublicKey(F)=F'
No
Is E'=F'?
Erase C
Yes
CustomerPublicKey=E
SignDownEnc-1_CustomerPublicKey(D)=D'
SignDownHash(C)=C'
No
Is C'=D'?
Erase C
Yes
Validated Appli C
Store Appli in RAM using encryption hardware interface

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Figure 4A

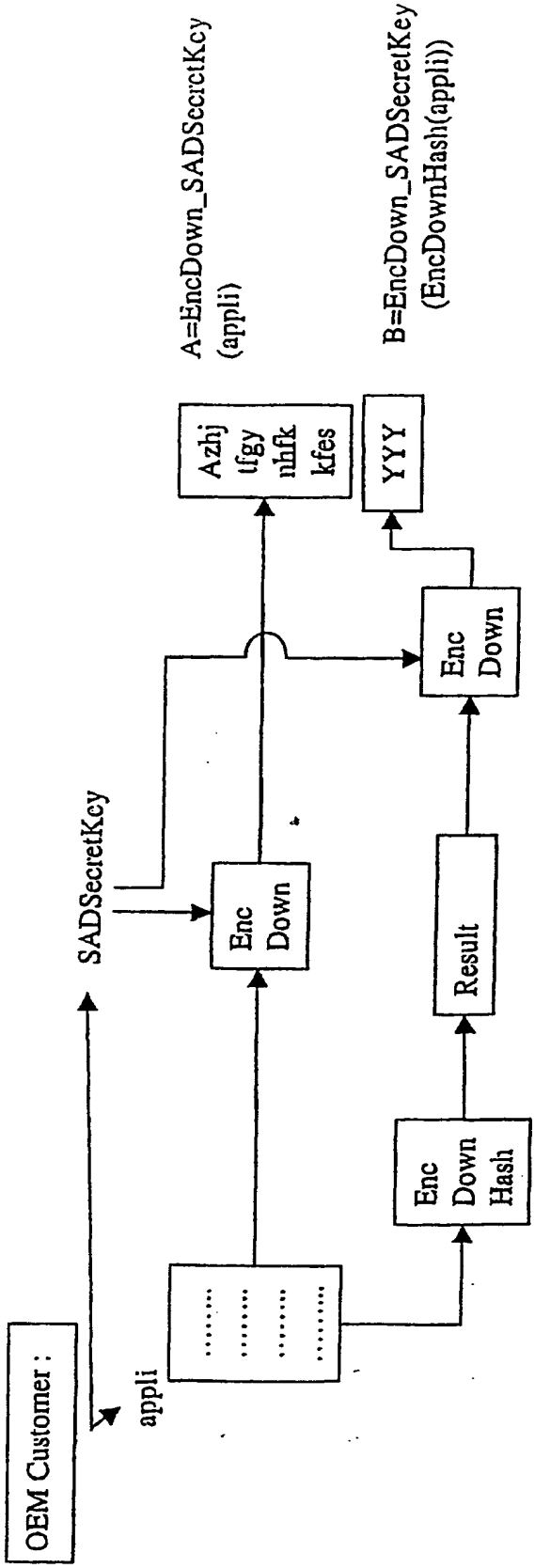

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Figure 4B

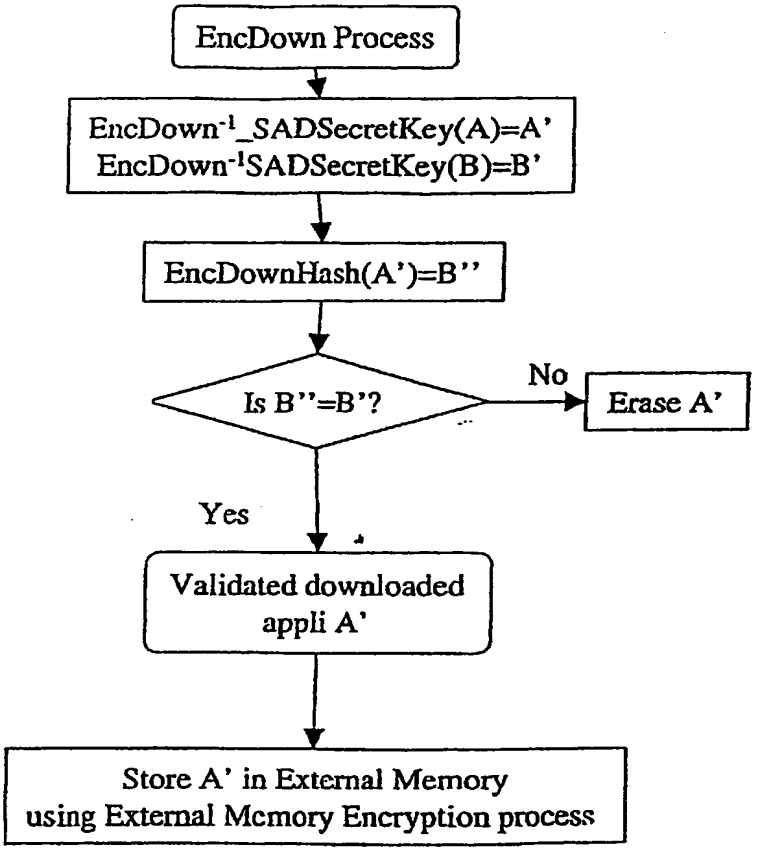

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figure 5A

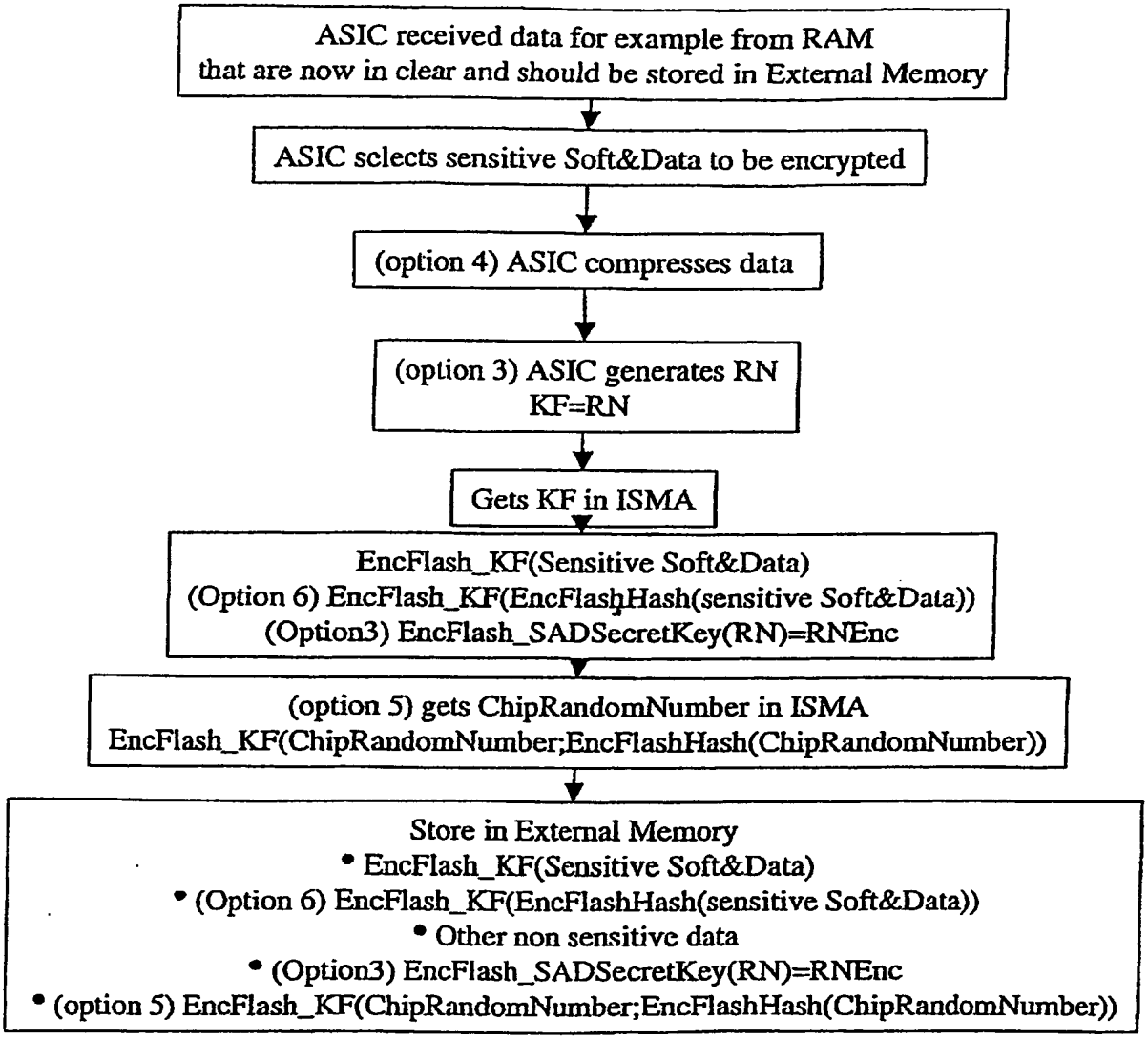

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figure 5B

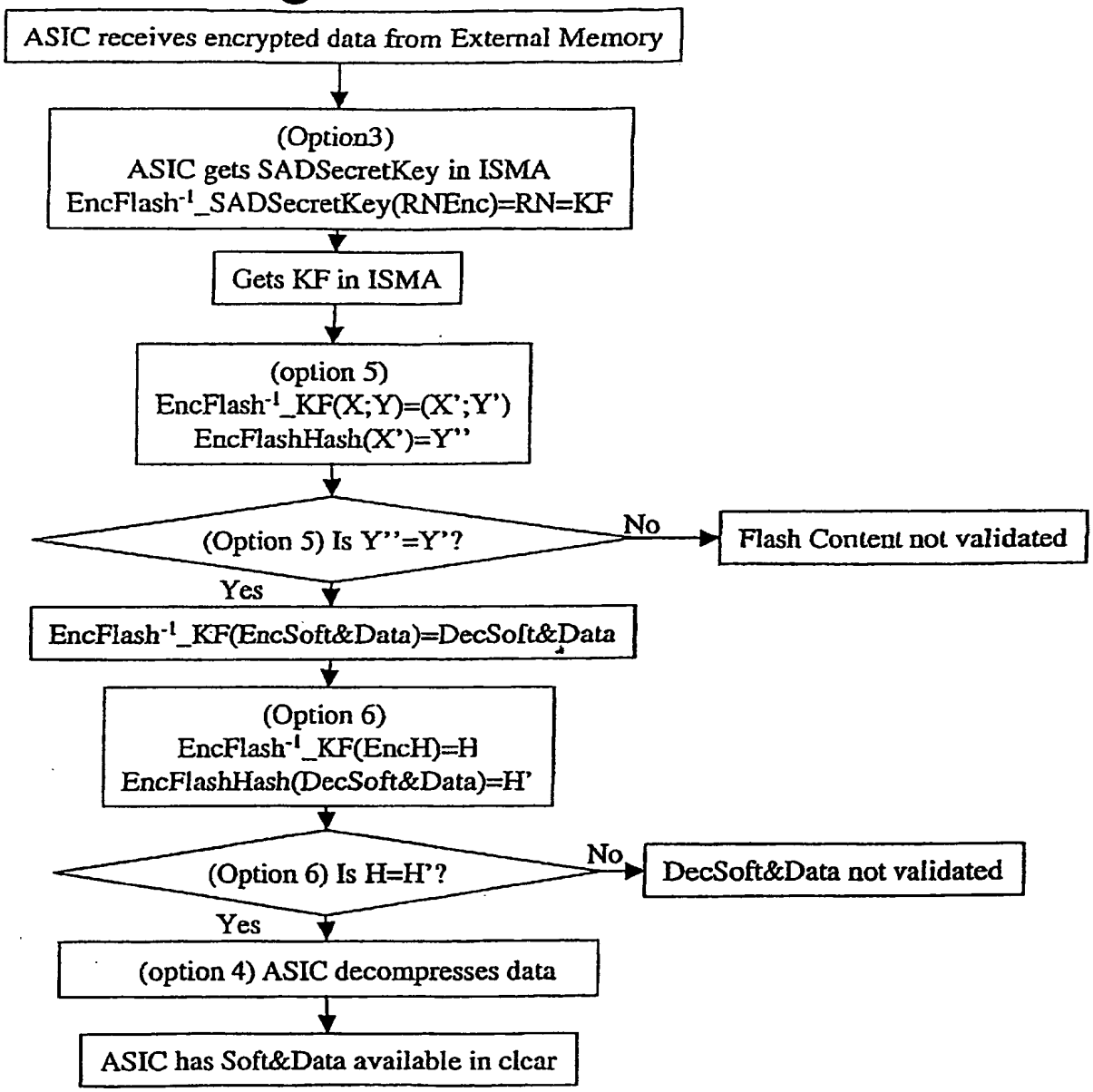

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figure 6

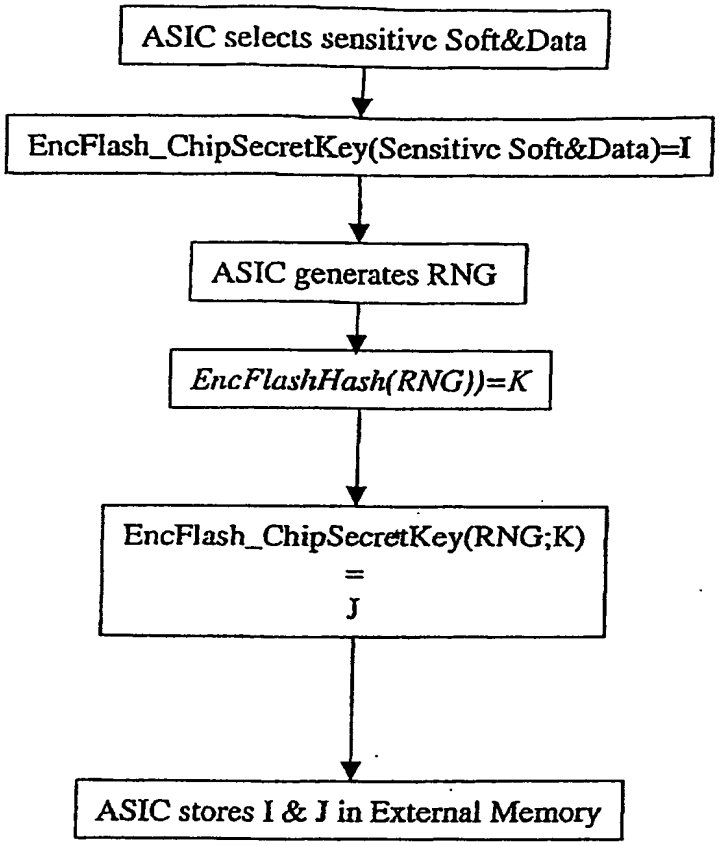

figure 7

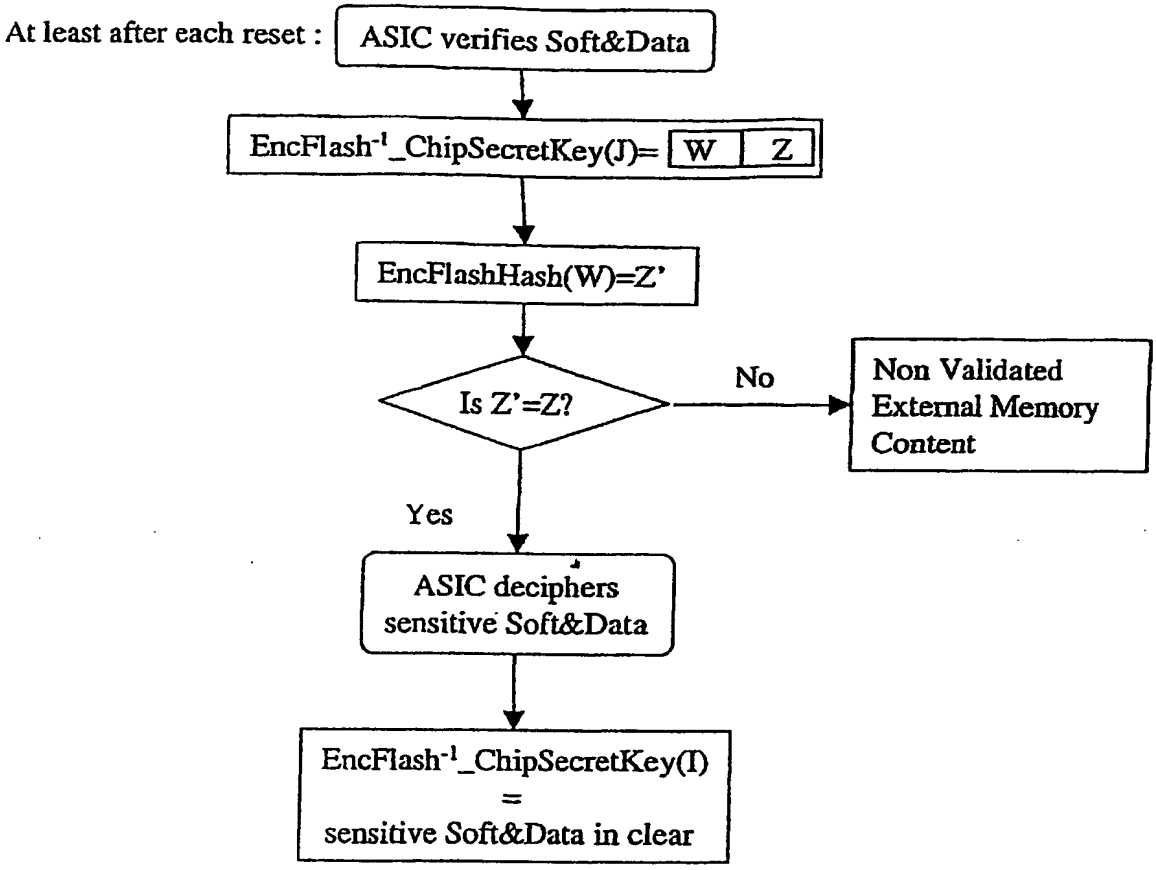
At least after each reset :
ASIC verifies Soft&Data
EncFlash-1_ChipSecretKey(J)=
W
Z
EncFlashHash(W)=Z'
Is Z'=Z?
No
Non Validated External Memory Content
Yes
ASIC deciphers sensitive Soft&Data
EncFlash-1_ChipSecretKey(I) = sensitive Soft&Data in clear

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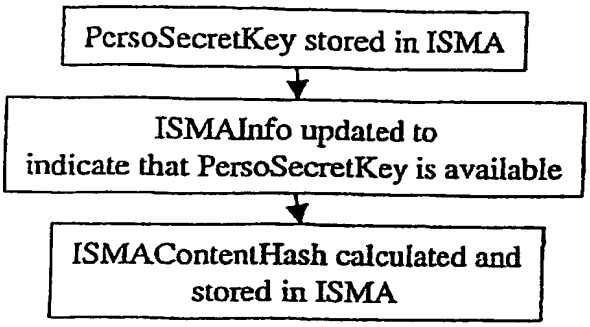
figure 8



ISMA after First level personalization

ASIC ISMA :

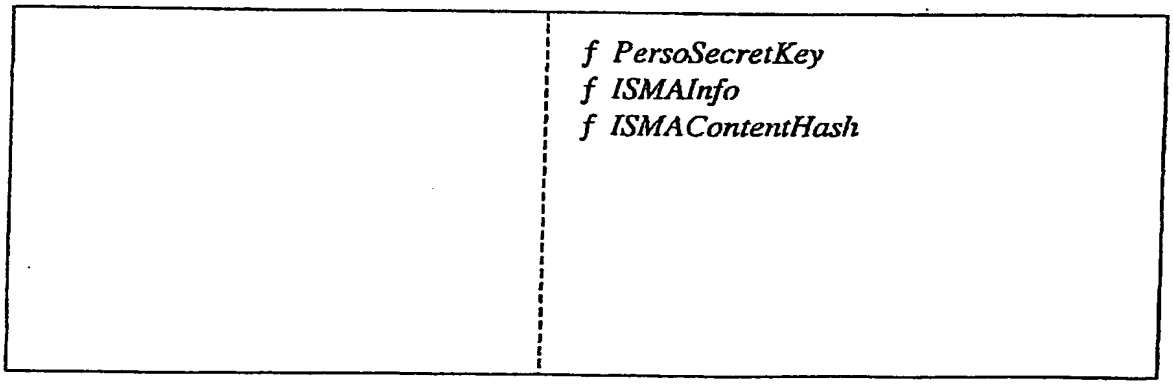


figure 9

- SignPersHash is a hash function used
- give a 20 Bytes result relevant to ersoAppli integrity
- SignPersEnc is an encryption ignature)algorithm used to encrypt the ash result asymmetrically with ADPrivateKey
- EncPers is an encryption symmetric ol used to encrypt the personalization ftware and eventually its signature

SAD provides personalization application PersoAppli to OEM customer

EncPers_PersoSecretKey(PersoAppli) & SignPersEnc_SADPrivateKey(SignPersHash(PersoAppli)) or EncPers_PersoSecretKey(PersoAppli;SignPersEnc_SADPrivateKey(SignPers Hash(PersoAppli)) downloaded by OEM customer

PersoAppli is available in a protected and signed format OEM Customer's ASIC having PersoSecretKey & SADPublicKey will be able to authenticate it, and then to unencrypt it.

ISMA after Second level personalization

ASIC ISMA :

	f Sensitive data *f ISMAInfo* *f ISMAContentHash*

PersoAppli will have the task
- to file ISMA with sensitive data
- erase PersoSecretKey
- update ISMAInfo
- Compute and write ISMAContentHash
- erase PersoAppli

PersoAppli will stored sensitive data corresponding to the different option corresponding to the OEM customer requirements. It could be run directly or stored in the External Memory using EncFlash_PersoSecretKey (means KF = PersoSecretKey).

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figure 10

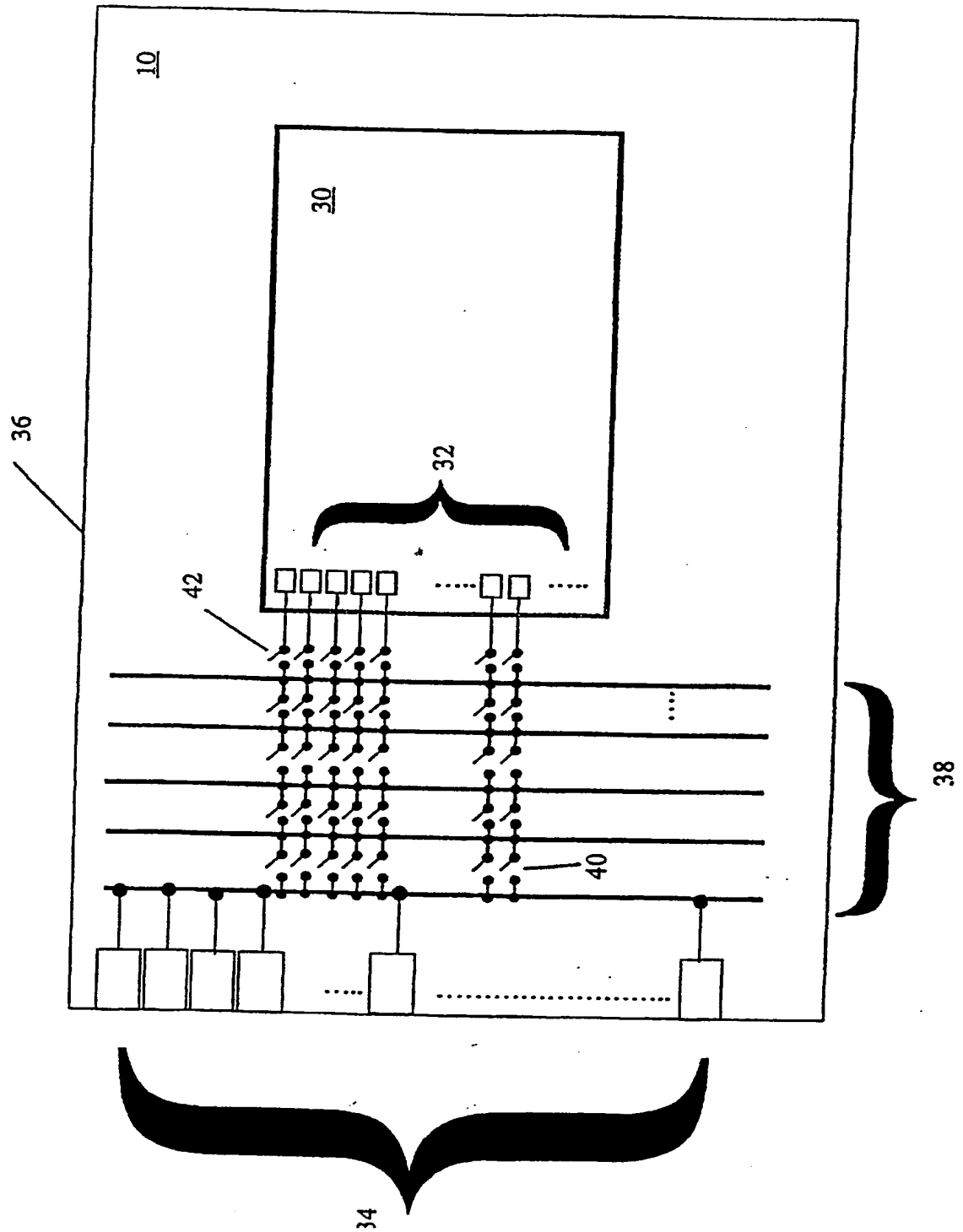
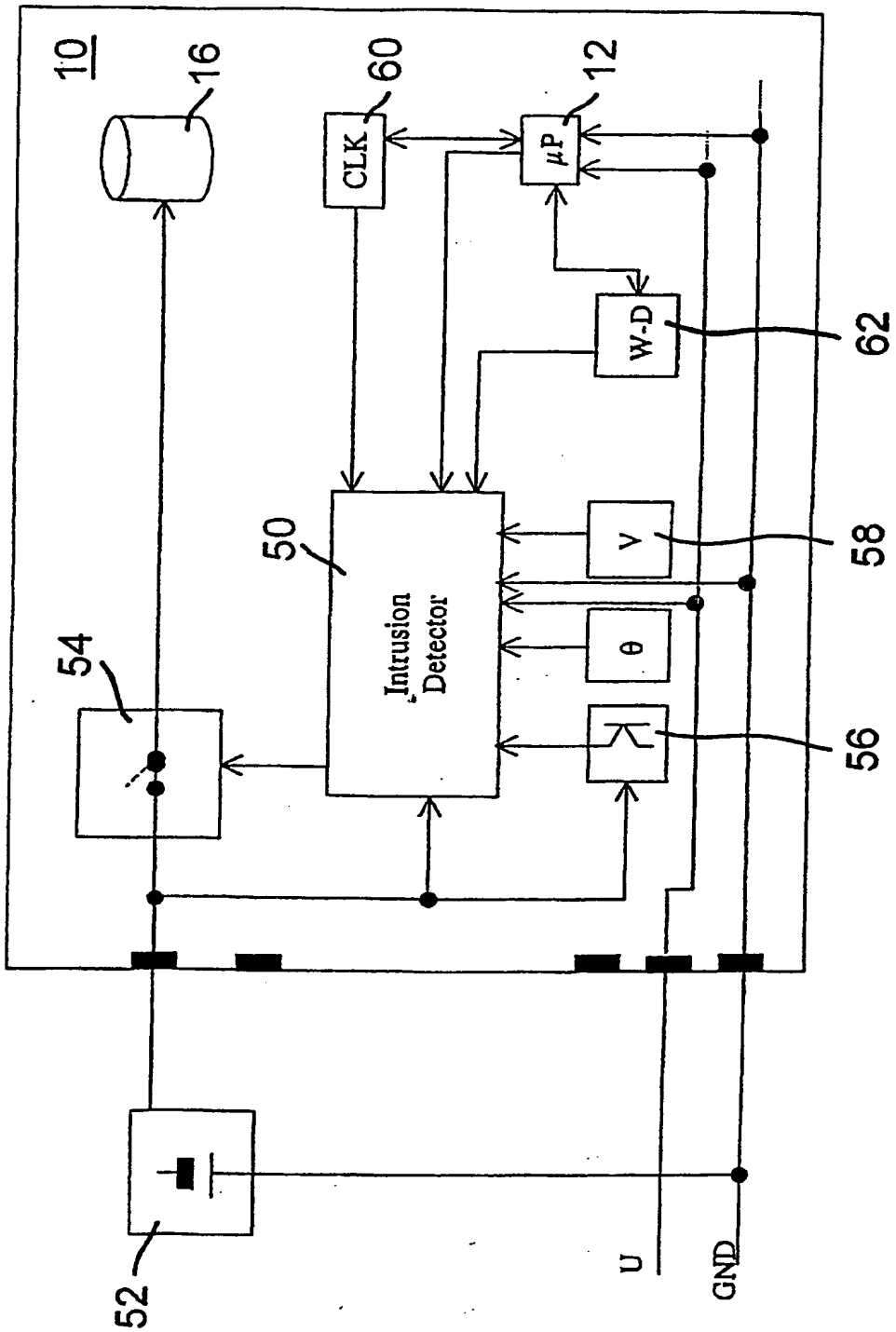


figure 11


10
16
60
12
CLK
µP
W-D
62
50
Intrusion Detector
V
58
θ
54
56
52
U
GND

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